

Message Text

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C O N F I D E N T I A L OTTAWA 02783

LIMDIS

NOFORN

E.O. 11652: GDS 1 & 2

TAGS: IAEA TECH PK CA

SUBJECT: PAKISTAN REQUEST FOR HEAVY WATER - TECHNICAL SUPPLEMENT

REF: STATE 171342; OTTAWA 2737

1. IN DISCUSSIONS REPORTED IN OTTAWA REFTEL, EMBOFF WAS SOMEWHAT PUZZLED BY APPARENT LACK OF KNOWLEDGE ON PART OF AECB TECHNICAL PERSONNEL REGARDING PRECISE DETAILS OF HOW PAKISTANI LOST SO MUCH HEAVY WATER. FORTUNATE OPPORTUNITY SUBSEQUENTLY AROSE TO DISCUSS WHAT HAPPENED WITH SENIOR AECL AND CGE PERSONNEL WHO HAVE BEEN INVOLVED IN KANUPP FROM ITS EARLIEST DESIGN PHASES. (NOTE: IT IS ESSENTIAL TO PROTECT THESE SOURCES FULLY.) PICTURE THAT EMERGES IS A CONFUSED AND COMPLICATED ONE AS FOLLOWS:

A. "OFFICIAL" PAEC EXPLANATION TO CANADIANS, SO FAR, DOES NOT MAKE SENSE TECHNICALLY. KANUPP MODERATOR COOLING WATER SYSTEM CONSISTS OF THREE INTERLOCKING LOOPS. THE FIRST CIRCULATES HOT MODERATOR TO A CLOSED FRESH WATER LOOP FOR COOLING. THE THIRD CIRCULATES SEA WATER TO COOL THE FRESH WATER INTERMEDIATE LOOP. PAEC CLAIMS THAT SEA WATER CORRODES THROUGH SALT WATER-FRESH WATER HEAT EXCHANGER AND THAT SEA WATER LEAKED INTO FRESH WATER LOOP. SALT THUS INTRODUCED INTO FRESH WATER LOOP SUBSEQUENTLY CORRODED HEAVY WATER-FRESH WATER HEAT EXCHANGER ALLOWING HEAVY WATER TO

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LEAK INTO FRESH WATER LOOP AND FROM THERE INTO SALT

WATER LOOP AND BE PUMPED OUT TO SEA. DEPT WILL RECOGNIZE THIS TO BE HYDRAULIC IMPOSSIBILITY AS STATED. THIS LEAVES QUESTION WHAT DID IN FACT HAPPEN.

B. HYPOTHESES OF SENIOR TECHNICAL PEOPLE WHO KNOW SYSTEM INSIDE OUT ARE AS FOLLOWS: (1) THERE WAS A GROSS OPERATING ERROR WHICH PERMITTED REVERSAL OF PRESSUR DIFFERENTIALS THAT WAS SUBSEQUENTLY HIDDEN BY FALSIFICATION OF OPERATING RECORDS; (2) EVEN THOUGH CORROSION DAMAGE TO HEAT EXCHANGERS HAS APPARENTLY BEEN AT LEAST PARTIALLY VERIFIED, LEAK IN SENSE OF TOTAL LOSS NEVER ACTUALLY OCCURRED. THIS GIVES RISE TO TWO SUBHYPOTHESES AS FOLLOWS: (A) LEAK OCCURRED WITH RESULTING DOWNGRADING OF SOMETHING LIKE 5 TONS OF HEAVY WATER WHICH CAN BE UPGRADED AGAIN IN FACILITIES EXISTENT AT KANUPP; (B) THERE WAS NO APPRECIABLE LEAKAGE AND PAKISTANI SIMPLY REMOVED SIZEABLE QUANTITY OF HEAVY WATER TO INCREASE THEIR STOCKPILE.

C. ONE SENIOR OFFICIAL WHO HAS HAD CLOSE PERSONAL CONTACT WITH PAKISTANI AT OPERATING LEVEL EXPRESSED VIEW THAT PAEC HAS ALWAYS BEEN SOMEWHAT "PSYCHOTIC" ABOUT HEAVY WATER RESERVE. WHILE HE DOES NOT DISCOUNT POSSIBILITY THAT GROSS OPERATING ERROR AND SUBSEQUENT

COVER UP OF TRUE REASONS FOR MAJOR LOSS MAY BE INVOLVED, AT THE SAME TIME HE WILL NOT DISCOUNT POSSIBILITY THAT ESTIMATED 5-TON LOSS MAY BE SIGNIFICANTLY IN ERROR, I.E., BY PERHAPS AS MUCH AS 90 PERCENT.

D. SAME SOURCES WITH WHOM THIS WAS DISCUSSED ALSO SPECULATED ON POSSIBILITY THAT PAEC MIGHT BE TRYING TO ACCUMULATE STOCKPILE FOR SUBSEQUENT UNSAFEGUARDED USE IN EXPLOSIVE DEVICE EFFORT. ALL WERE UNANIMOUS IN EXPRESSING VIEW THAT THERE EXISTS WITHIN PAEC SMALL GROUP OF HIGHLY CAPABLE SCIENTISTS WHO COULD ORGANIZE AN EXPLOSIVE DEVICE PROGRAM IF GIVEN THE RESOURCES AND OPPORTUNITY. THEY WERE EQUALLY UNANIMOUS IN EXPRESSING VIEW THAT IT WOULD BE EXTREMELY DIFFICULT FOR THIS GROUP TO CARRY THROUGH SUCH A PROGRAM SUCCESSFULLY. REASONS FOR THIS LATTER VIEW DIFFER BUT CAN BE GERICALLY SUMMARIZED UNDER THE HEADING OF AN INADEQUATE INFRA-STRUCTURE TO SUPPORT THE PROGRAM.

E. GOC, CGE, AECL, AND CANATOM ARE ALL AWAITING WITH CONSIDERABLE INTEREST RETURN OF CANATOM TECHNICAL EXPERT REFERRED TO IN PARA 2-G OF OTTAWA REFTEL. WITH HIS RETURN, PRESUMABLY PICTURE WILL CLARIFY.

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